



Code guidance from the Department of Labor and Industries
Office of the Chief Electrical Inspector

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Electrical code issues and answers.

● Effective date of the 1999 National Electrical Code

The 1999 NEC will be effective on March 15, 1999. The department will allow a transition period of approximately 90 days (till June 30, 1999) when either the 1996 or the 1999 code (not a mixture) can be applied to an electrical installation. This will allow contractors and electricians time to get training on 1999 code changes.

● Household ranges and cooking appliances

Article 210-19(b) of the National Electrical Code states that *"Branch circuit conductors supplying household ranges, wall-mounted ovens, counter-mounted cooking units, and other household cooking appliances shall have an ampacity not less than the rating of the branch circuit and not less than the maximum load to be served. For ranges of 8¾ KW or more rating, the minimum branch-circuit rating shall be 40 amps."* Exception No. 1 allows *"Tap conductors supplying electric ranges, wall mounted electric ovens, and counter mounted electric cooking units from a 50 ampere branch circuit shall have an ampacity of not less than 20 and shall be sufficient for the load to be served. The taps shall not be longer than necessary for servicing the appliance."* This tap may be part of the listed appliance or an appliance whip (tap) may be added in the field by the installer. It may only be of sufficient length to allow servicing of the appliance and must originate from a junction box that is adjacent to the appliance.

● Cathodic protection systems

This issue was decided by an administrative law judge and the decision was upheld in its entirety by the electrical board in April of 1996. The installation of the DC portion of a cathodic protection system (CPS) is not covered by the electrical statute. The AC dedicated circuit and rectifier must be installed by an electrical contractor and the equipment must be listed. The decision by the administrative law judge found "The installation of cathodic systems is not regulated by RCW 19.28" and further found that the installer of the wiring on the secondary side of the rectifier "needs no electrical license to install a cathodic protection system." The State adopted WAC 173-360 as the State Department of Ecology Regulations governing cathodic protection systems.

The department will inspect the branch circuit wiring to the rectifier and the rectifier itself for listing and labeling. Raceways for these systems installed in buildings or underground must comply with RCW 19.28. This part of the installation requires a contractors license, certified individuals to make the installation and an electrical work permit and inspection. The direct buried cathodic wire and connections to the tanks on the load side of the rectifier are under the jurisdiction of the Department of Ecology.

● Hard copies of electrical permit application must be posted on the job site

WAC 296-46-495(3) states that: *"The electrical work permit application shall be posted on the job site at a conspicuous location prior to beginning electrical work and at all times electrical work is performed."* The hard copy should be posted so that it will not be subject to damage by wind, rain, or weather. This may require some kind of plastic bag or other suitable protection. Approved work will be documented by the inspector with appropriate approval stickers and written legibly on the posted electrical work permit application (green) site hard copy. Accurate approval details, dates, areas, and action taken must be included on the site copy of the permit since this is the premises owner's only documentation of inspection results. **It is essential that the integrity of the hard copy be maintained by both the installer and the inspector.**

It is also required in WAC 296-46-495(1) that: *"The classification or type of facility to be inspected and the scope of the electrical work to be performed shall be clearly shown on the electrical work permit."* This information is necessary so that the inspector knows the complete scope of the work performed and all the areas within a facility where work was done. An accurate description eliminates confusion and possible return trips that may be required when the scope of the work or the area of the inspection is not clear. "One circuit" may be hard to locate in a department store. A proper description should include the area in the building the circuit can be found, where the circuit originates, and where it terminates.

● A new HVAC/refrigeration limited energy electrical specialty

A new HVAC/refrigeration specialty electrical contractor's license, administrator's certificate, and specialty electrical technician certificate are included in the revisions to WAC 296-46 and WAC 296-401A. The changes are part of the department's efforts to replace existing electrical section policies and practices with specific regulations in the WAC that are consistent with the requirements of the electrical installations law (RCW 19.28).

What are the limitations of this specialty? This specialty is limited to installation of low voltage, Class 2 HVAC and refrigeration control circuit cable for control of furnaces, heat pumps, and similar HVAC or refrigeration equipment. Class 2 control wiring to associated system components, such as thermostats, humidistats, low voltage damper controls outdoor temperature sensors, stand-alone duct smoke detectors, and zone control valves, is also included. The Class 2 wiring is limited to buildings that do not exceed three floors above grade, except for residential occupancies.

Can any line voltage work be done by this specialty? This specialty may install, service, maintain, repair, or replace HVAC/refrigeration electrical systems as long as the work is on the HVAC/refrigeration system itself. This specialty may replace line voltage components within the equipment, only if components are like in kind with identical voltage and current ratings. Wiring of (line voltage) branch circuit conductors, services, feeders, panelboards, or disconnect switches is not included in this certification. Short sections of raceway may be installed for access to or physical protection of cables, however wiring in conduit systems and wiring in classified locations is prohibited.

How can I qualify to take the HVAC/refrigeration limited energy technician exam? For applications received prior to March 1, 2000, persons will be eligible to take the HVAC/refrigeration limited energy technician specialty examination by submitting to the department a signed and notarized letter from employer(s) stating that they have "performed HVAC or refrigeration equipment installation, service, or repair and were employed for a minimum of two years by a contractor engaged full time in the business of HVAC or refrigeration equipment installation or repair work."

Employers must establish appropriate business status by supplying copies of their RCW 18.27 contractor's registration or business license for the time period being certified for themselves or their employees. Individuals will be permitted to take the HVAC/refrigeration limited energy technician specialty examination after submitting a qualifying application and paying the appropriate examination fees. Specialty electrical technician certificates will be issued upon successful passage of the examination. All individuals that submit applications prior to March 1, 2000 and qualify to take the exam will remain qualified to take the exam after that date.

After March 1, 2000, all applicants must show at least two years (4000 hours per WAC 296-401A-210) of experience as a certified trainee installing, servicing, or repairing HVAC or refrigeration systems under the direct supervision of an HVAC/refrigeration limited energy technician, a limited energy specialty electrician, or a journeyman electrician.

How can I continue to work while I prepare for the certification exam? In order to facilitate the transition from an uncertified workforce to certified workforce, applicants that meet the two-year experience requirements will be issued a special third year training certificate and be temporarily (until March 1, 2002) considered an HVAC/refrigeration limited energy technician for the purpose of working within the scope of this specialty without supervision and for the purpose of supervising first and second year trainees on the job site. After March 1, 2002, you must have successfully passed the certificate examination to perform this work without supervision or to supervise trainees. If individuals have less than two years of experience, on or before March 1, 2000, they may apply for a training certificate level comparable to the hours for which they can provide proof of experience.

Will I be able to do HVAC/refrigeration limited energy control wiring or electrical repair without this certification? No. Labor and Industries' compliance officers and electrical inspectors will determine that each person doing electrical work on the job site has a proper journeyman, specialty, or trainee certificate per WAC 296-401A sections 100, 105, and 500. Not more than two trainees shall be permitted to work on a job site for every specialty electrical technician, specialty electrician, or journeyman electrician working as a specialty electrician. HVAC/refrigeration limited energy technician trainees may work unsupervised during their second year when installing HVAC systems with controls consisting of a single thermostat in one and two family dwelling units only.

Are there any additional requirements once I have obtained certification? In order to renew an HVAC/refrigeration limited energy technician certificate, the holder must demonstrate evidence of completion of an approved continuing education course(s) of at least eight classroom hours duration per year of the prior certification period. At least eight of those total hours shall be on the current National Electrical Code changes. Currently the certification period is three years (36 months), so 24 hours of continuing education units are required for renewal.